

1. 0
2. $-3\sqrt{3} + 15^{\frac{3}{4}}$
3. -8
4. $\frac{3(-2\sqrt[3]{2+3}\sqrt[3]{3})}{8}$
5. $6x^3 \cos x - 3x \cos \sqrt{x}$
6. $8t^2 \frac{2t-3}{4t^2+1} - t^2 \frac{t+3}{t^2+1}$
7. 8
8. $\frac{3}{2}$
9. 4
10. 0.906737
 $f'''(x) = -48x^2 \cos(x^2) - 12 \sin(x^2) + 16x^4 \sin(x^2)$
 Use $M = 48\pi^2 + 12 + 16\pi^4 \approx 1848$.
 $n = 120$
11. 0.608622
 $f''(x) = 2 \cos(x^2) - 4x^2 \sin(x^2)$
 Use $M = 2 + 4\pi^2 \approx 12$
 $n = 2491$
12. Trapezoid: $n = 41$
 Simpson: $n = 14$
13. The fourth derivative of a cubic polynomial is 0. The error estimate then says the absolute value of the error is at most 0, so the error is 0.
14. $y = 1 + \int_1^x \left(t + \frac{1}{t}\right)^2 dt = \frac{1}{3}x^3 + 2x - \frac{1}{x} - \frac{1}{3}$
15. This is in your notes.
16. This is in your notes.
17. $\int_{-25}^{25} 2\sqrt{625 - x^2} \left(\frac{1}{5}x + 15\right) dx = 9375\pi$
18. Done in class.
19. $\int_{-1}^1 4(1 - x^2) dx = \frac{16}{3}$
20. $\frac{3\pi}{16}$
21. x -axis: $\frac{31\pi}{10}$ y -axis: 4π
22. $\frac{4}{3}$
23. 2π
24. $\frac{63\pi}{2}$
25. $\frac{500\pi}{3}$
26. 2π
27. $\frac{26}{3}$
28. 0
29. $\frac{13}{4}$
30. 12
31. $\int_{-1}^1 \sqrt{1 + (2x)^2} dx$
32. True. $f(x) = \int_0^x \sin(t^2) dt$